NWS FORM E-19 (COVER)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

REPORT ON RIVER GAGE STATION

REVISED, PRINTED DATES: 09/21/2011, 09/21/2011

LOCATION: Farad
STREAM: Truckee River
BASIN: Truckee River HSA: REV

REFERENCES:
CA DWR TRUCKEE RIVER ATLAS, 6/1991
CORRESPONDENCE W/CITY OF RENO EMERGENCY MGR.
CORRESPONDENCE W/ CITY OF SPARKS EMERGENCY MGR.
CORRESPONDENCE W/ CITY OF SPARKS PUBLIC WORKS
CORRESPONDENCE W/ CITY OF RENO PUBLIC WORKS
CORRESPONDENCE W/ FEDERAL WATER MASTER, TRUCKEE RIVER
CORRESPONDENCE W/ TRUCKEE RIVER FLOOD PROJECT
CORRESPONDENCE W/ WASHOE COUNTY EMERGENCY MANAGER
DE LORME XMAPS V4.5
FEMA FLOOD INSURANCE RATE MAPS: NEVADA CO, WASHOE CO. CITIES OF RENO & SPARKS
FEMA FLOOD INSURANCE STUDIES; NEVADA CO. CA, WASHOE CO. NV
GOOGLE EARTH AND GOOGLE MAPS
NV BUREAU OF MINES & GEOLOGY, 1998: 1997 NEW YEARS FLOODS IN WESTERN NEVADA
NV DEPT OF CONSERVATION & NATURAL RESOURCES: TRUCKEE RIVER CHRONOLOGY, 4/1997
NV DEPT OF CONSERVATION & NATURAL RESOURCES: THE FLOOD OF 1997 5/1997
NWS RENO: FEB. 1986 FLOODS IN WESTERN NEVADA
NWS COOP STN REPORT; FORM B-44: FARAD CA; 2/21/61-11/11/2010
TRUCKEE RIVER FLOOD PROJECT DRAFT FLOOD INUNDATION MAPS
USBR, LAHONTAN BASIN AREA OFFICE, 1997 FLOOD HYDROGRAPHS
USCE FEASIBILITY RPT & EIS; TRUCKEE MDWS (RENO-SPARKS METRO AREA): 2/1985
USCE FLOOD PLAIN INFO; TRUCKEE R.: RENO-SPARKS-TRUCKEE MDWS NV; 10/1970
USCE HYDROLOGY REPORT, TRUCKEE R., CA & NV, 2/1980
USCE JAN 1997 FLOOD ASSESSMENT: E SIERRA-W NV BASINS: 9/1997
USDA SCS; NV DEPT. OF CONSERVATION & NATURAL RESOURCES; CA RESOURCES AGENCY: FLOOD CHRONOLOGY, TRUCKEE RIVER BASIN, 1861-1976; 9/1977
USDA SCS; NV DEPT. OF CONSERVATION & NATURAL RESOURCES; CA RESOURCES AGENCY: WATER & RELATED LAND RESOURCES: CENTRAL LAHONTAN BASIN; 7/1975
USGS BOCA CA 7.5 MINUTE QUADRANGLE
USGS FACT SHEET FS123-97: FLOOD OF 1/1997 IN THE TRUCKEE RIVER BASIN, 8/1997
USGS FACTSHT 037-97:FLOOD CONTROL EFFECTS, TRUCKEE BASIN RESERVOIRS, 12/31/96-1/4/97: 3/1997
USGS FLOOD FREQUENCY ANALYSIS 1970-2006 (PREPARED 4/17/2007)
USGS FLOODS OF NOV-DEC 1950 IN WESTERN NEVADA (1954)
USGS INSTANTANEOUS DATA ARCHIVE WEBSITE (http://ida.water.usgs.gov)
USGS GAGING STATION DESCRIPTIONS, 8/12/1997, 3/26/2007, 6/2/2011
USGS MAP OF TRUCKEE & TAHOE BASINS (http://smig.usgs.gov/SMIG/features_0497/ltfig01.gif)
USGS PEAK FLOW DATA 1899-2011
USGS RENO NV 1:100,000 SCALE MAP 1980
USGS RENO NV 7.5 MINUTE QUADRANGLE 1967
USGS TRUCKEE CA 1:100,000 SCALE MAP 1977
USGS VERDI NV 7.5 MINUTE QUADRANGLE MAP 1967
USGS WATER RESOURCES DATA 1899-2011

ABBREVIATIONS:

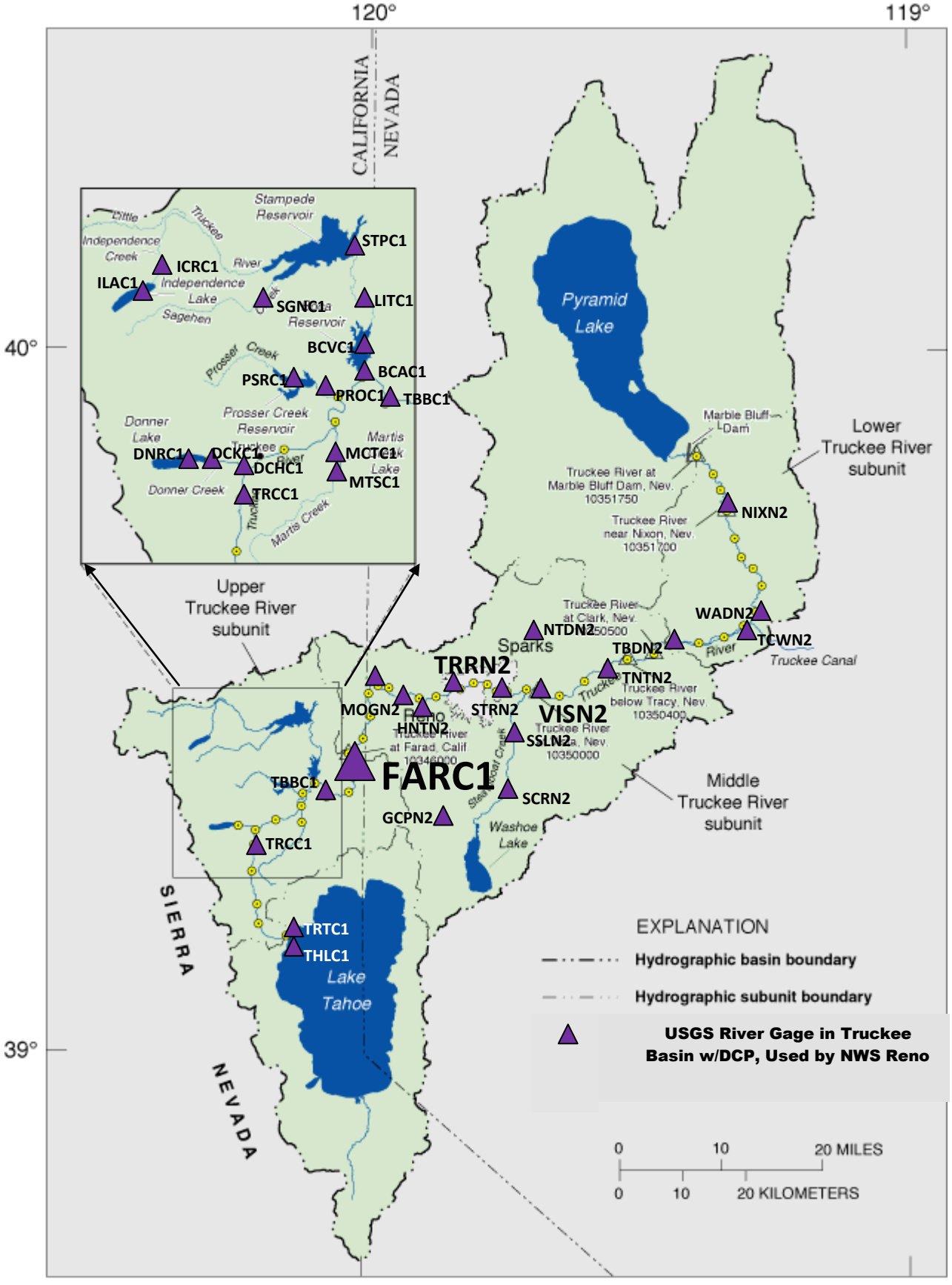
BM - bench mark	EPA - Environmental Protection Agency
DS - downstream	IBWC - International Boundary and Water Comm.
US - upstream	MSRC - Mississippi River Commission
HW - high water	MORC - Missouri River Commission
LW - low water	NOAA - National Oceanic and Atmospheric Admin.
RB - right bank	NOS - National Ocean Survey
LB - left bank	NWS - National Weather Service
MGL - mean gulf level	TVA - Tennessee Valley Authority
MLW - mean low water	USACE - U.S. Army Corps of Engineers
MSL - mean sea level	USBR - U.S. Bureau of Reclamation
MLT - mean low tide	USGS - U.S. Geological Survey
MT - mean tide	USWB - U.S. Weather Bureau
WQ - water quality	NGVD - National Geodetic Vertical Datum
RM - reference mark	NAD - North American Datum
RP - reference point	

LOCATION IDENTIFICATION: FARC1
NWS INDEX NUMBER: 04-2972-3
USGS NUMBER: 10346000

MAP OF TRUCKEE & TAHOE BASINS...
Including other USGS River Gages, Lakes and Reservoirs in Truckee Basin

LATITUDE: 39 25 41 LONGITUDE: 120 01 59

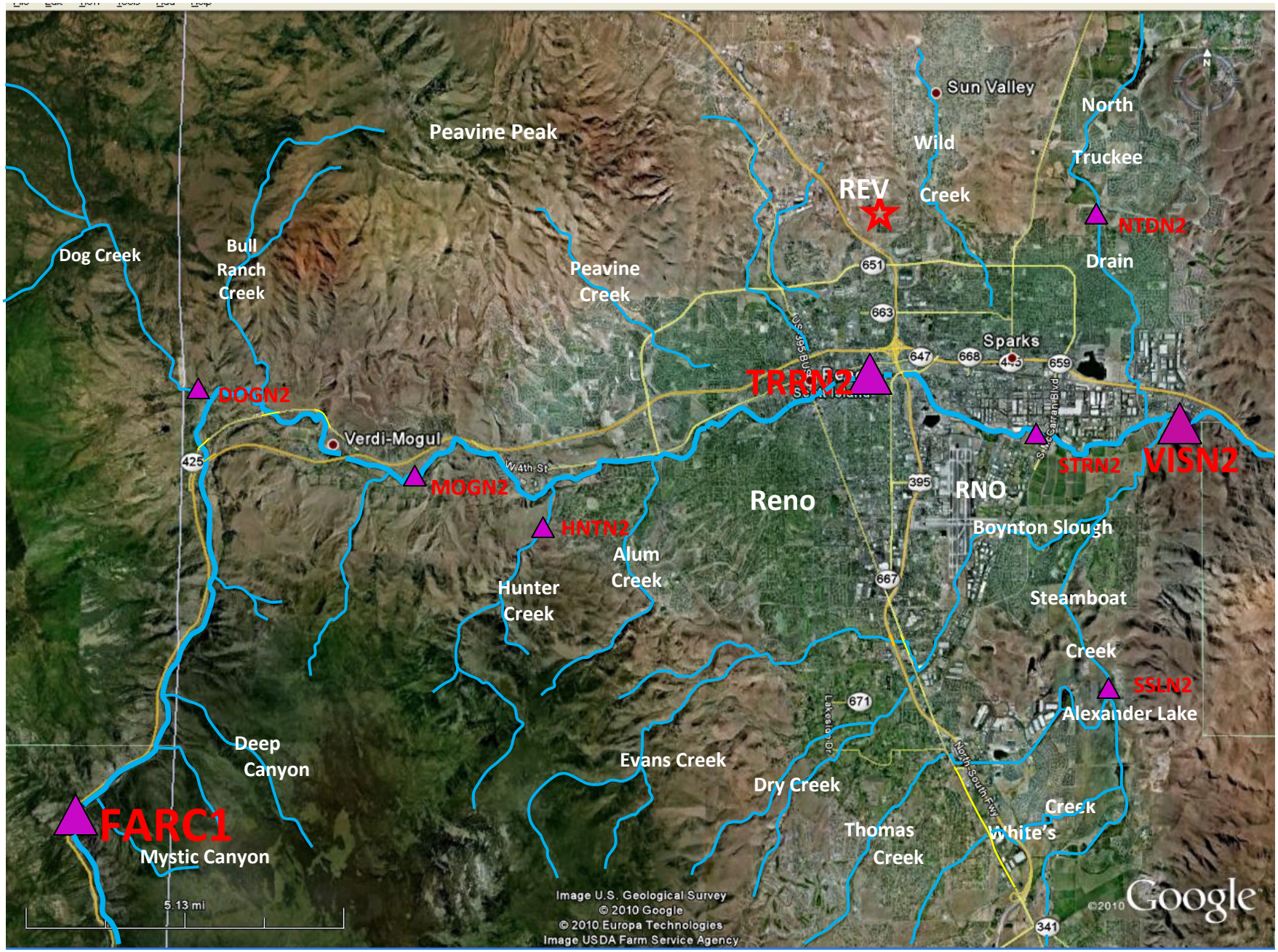
Base Map Source: http://smig.usgs.gov/SMIG/features_0497/ltfig01.gif



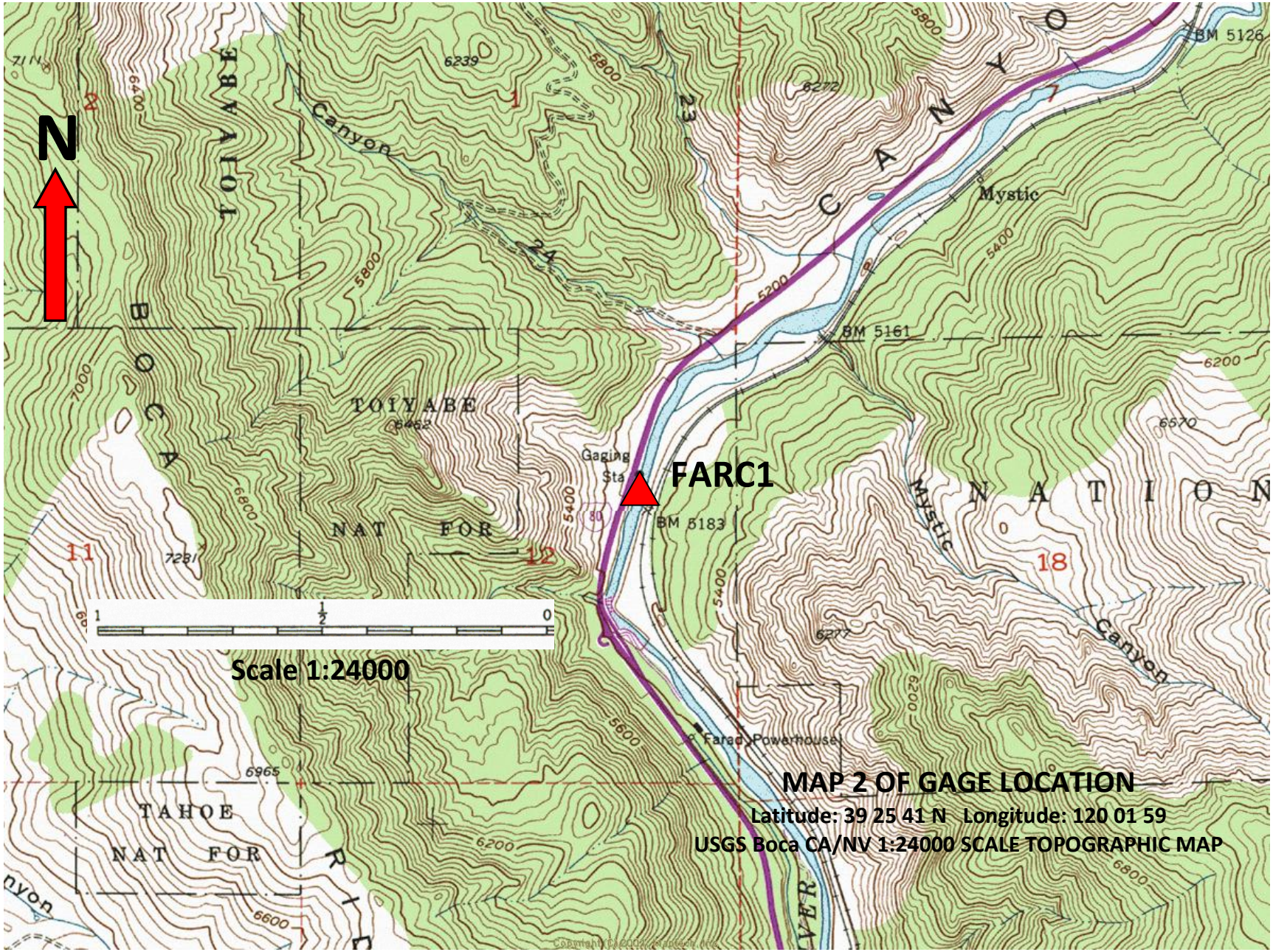
Base from U.S. Geological Survey digital data, 1:100,000, 1979-80
Universal Transverse Mercator projection, Zone 11

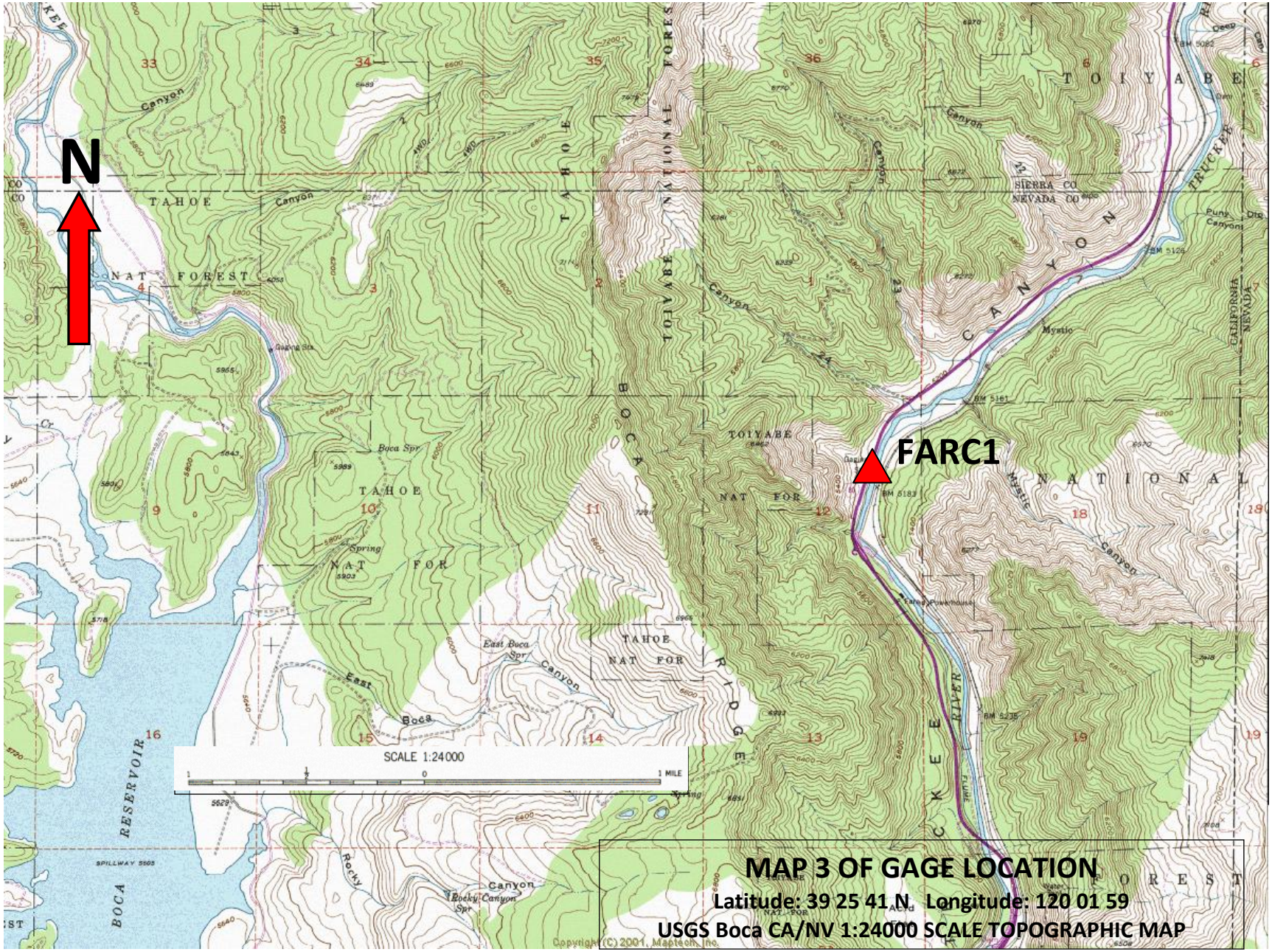
MAP 1 OF GAGE LOCATION...Satellite Image with Hydrographic Features

LATITUDE: 39 25 41 LONGITUDE: 120 01 59



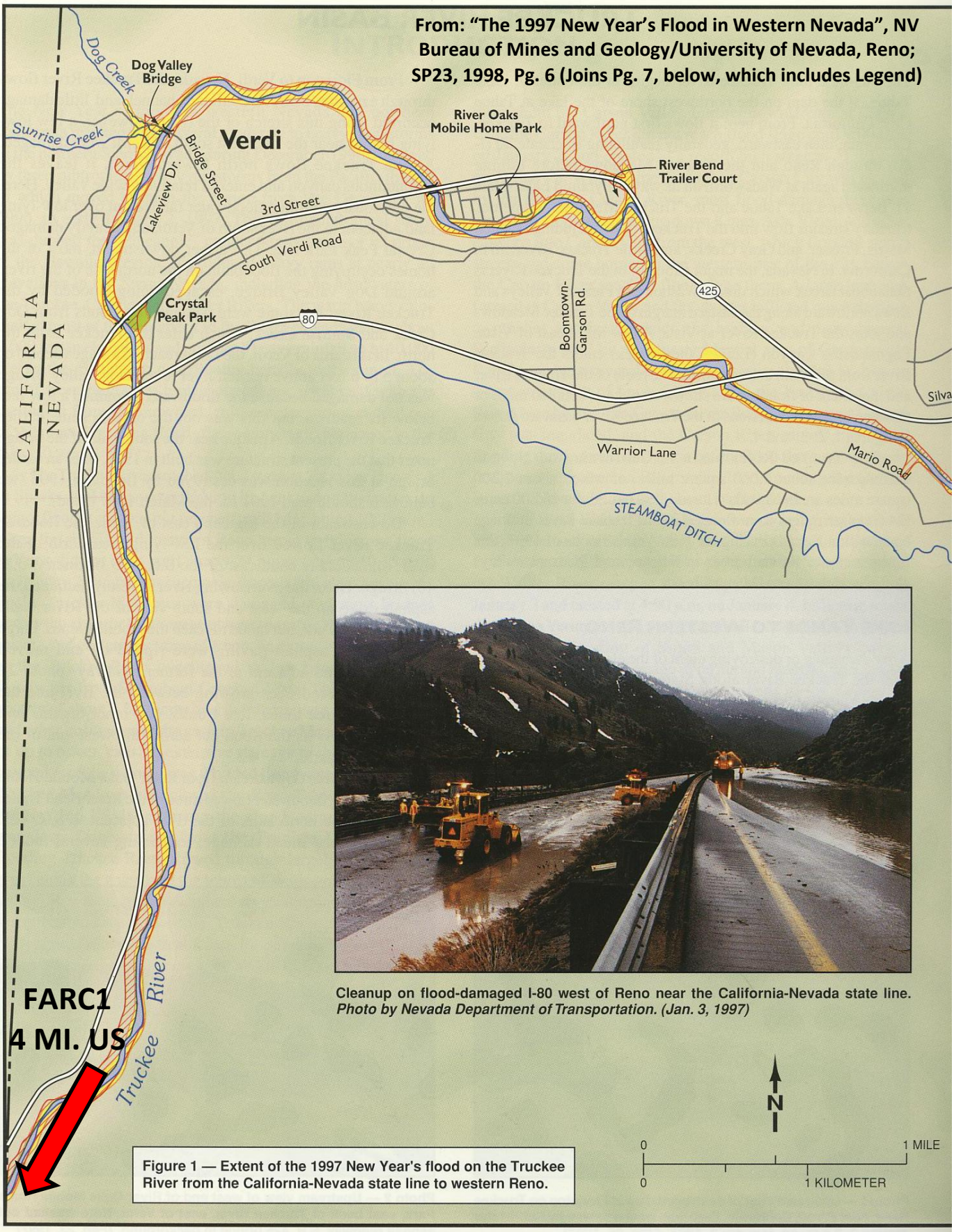
Satellite image of Truckee River Basin from Farad (FARC1 nr CA/NV State Line) to Vista (VISN2) River Forecast Points


N
FARC1
Gaging Sta
BM 5183
BM 5161
BM 5126
Mystic
Canyon
TOIYABE
NAT FOR
TAHOE
NAT FOR
Farad Powerhouse
Scale 1:24000
MAP 2 OF GAGE LOCATION
Latitude: 39 25 41 N Longitude: 120 01 59
USGS Boca CA/NV 1:24000 SCALE TOPOGRAPHIC MAP


N
FARC1
SCALE 1:24000
1 MILE
MAP 3 OF GAGE LOCATION
Latitude: 39 25 41 N Longitude: 120 01 59
USGS Boca CA/NV 1:24000 SCALE TOPOGRAPHIC MAP
Copyright (C) 2001, Maptech, Inc.
TAHOE NAT FOREST
TOIYABE NATIONAL FOREST
CANYON
BOCA RESERVOIR
TRUCKEE RIVER
TAHOE NAT FOR RIDGE
Boca Spr
East Boca Spr
Rocky Canyon Spr
Mystic
Canyon

Aerial view of gage location, view is to north.

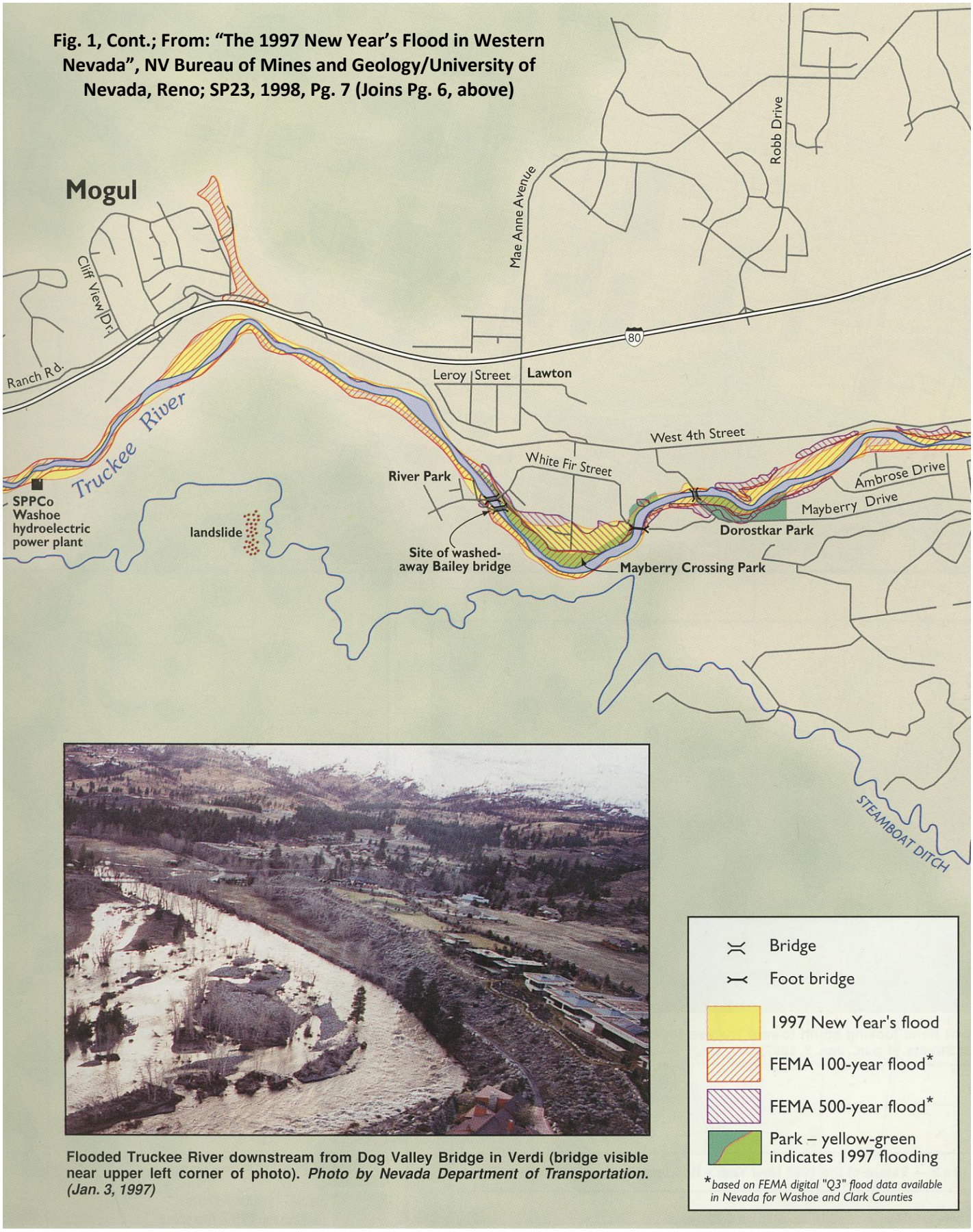
From: "The 1997 New Year's Flood in Western Nevada", NV Bureau of Mines and Geology/University of Nevada, Reno; SP23, 1998, Pg. 6 (Joins Pg. 7, below, which includes Legend)



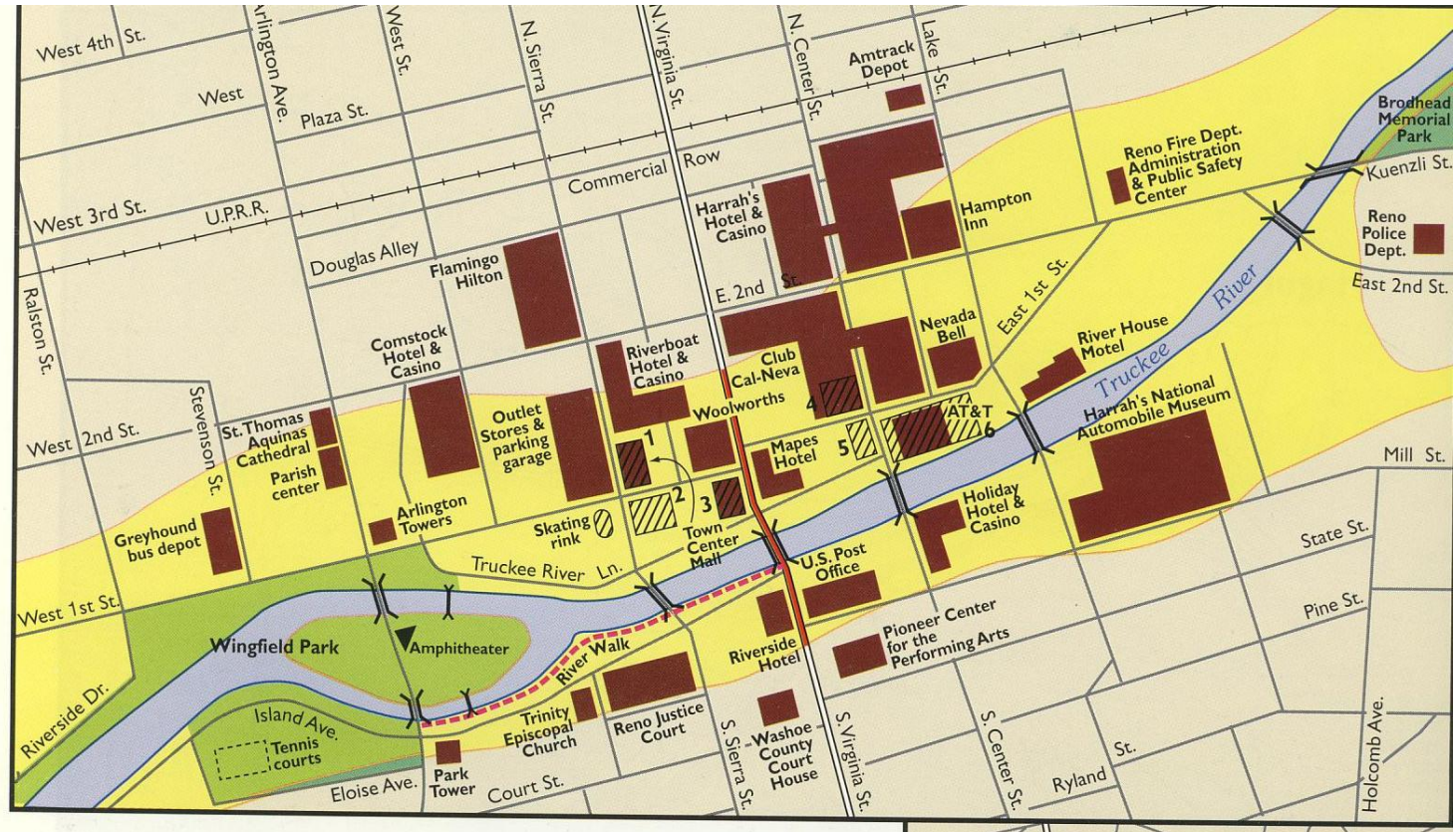
Cleanup on flood-damaged I-80 west of Reno near the California-Nevada state line. *Photo by Nevada Department of Transportation. (Jan. 3, 1997)*

Figure 1 — Extent of the 1997 New Year's flood on the Truckee River from the California-Nevada state line to western Reno.

Fig. 1, Cont.; From: "The 1997 New Year's Flood in Western Nevada", NV Bureau of Mines and Geology/University of Nevada, Reno; SP23, 1998, Pg. 7 (Joins Pg. 6, above)



Flooded Truckee River downstream from Dog Valley Bridge in Verdi (bridge visible near upper left corner of photo). ***Photo by Nevada Department of Transportation. (Jan. 3, 1997)***



Downtown Reno looking south toward Truckee River at intersection of Ralston and West 1st Streets. (1 p.m., Jan. 2, 1997)

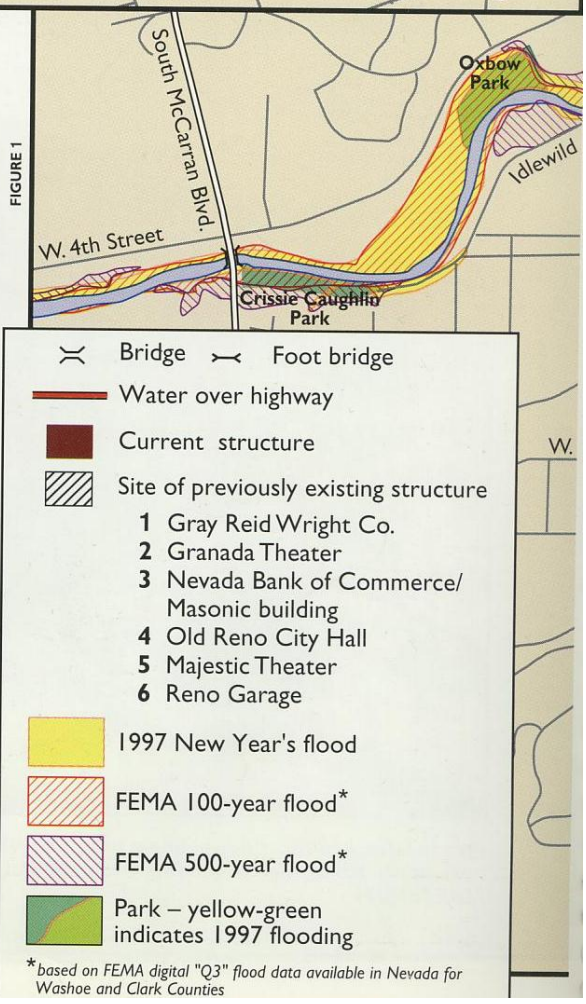


Figure 2 — Extent of the 1997 New Year's flood on the Truckee River in Reno.

From: "The 1997 New Year's Flood in Western Nevada", NV Bureau of Mines and Geology/University of Nevada, Reno; SP23, 1998, Pg. 8 (Joins Pg. 9, below)

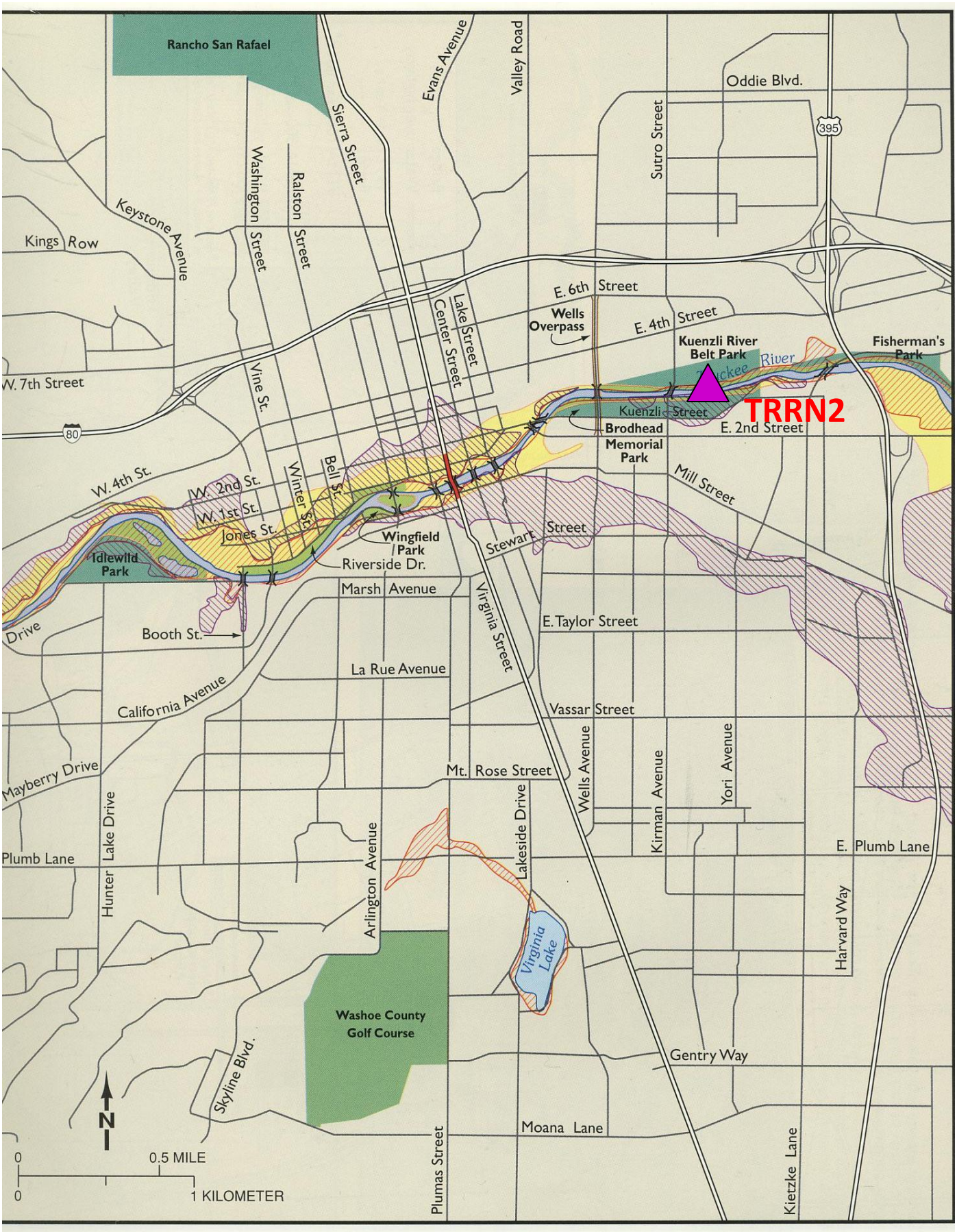


Fig. 2, Cont.; From: "The 1997 New Year's Flood in Western Nevada", NV Bureau of Mines and Geology/University of Nevada, Reno; SP23, 1998, Pg. 9 (See Pg. 8, above, for Legend).

BENCHMARKS

ELEVATION OF GAGE ZERO: 5153.210 VERTICAL DATUM: NGVD 1929
LEVELING AGENCY AND DATE: USGS CHECKBAR: 0.000
RATING AGENCY: USGS

BENCHMARK	DESCRIPTION	GAGE ZERO	DATUM
RM1	Destroyed.		
RM2	Brass tablet in LB anchor block. (9/3/2010 levels)	17.563	5170.773
RM3	Top of half inch pipe cap in concrete 18 ft shoreward of end of walkway and 3' upstream. (levels of 9/3/2010).	18.453	5171.663
RM4	Telephone pole step in base of large pine tree 16 ft upstream of gage and 2.9 ft above ground. (Levels of 9/3/2010).	16.743	5169.953
RM5	Lag bolt in telephone pole 5' from gagehouse. (Levels of 9/3/2010)	17.423	5170.633
RM6	Rock marked w/yellow paint 40' W of trail nr pine tree.	22.918	5176.128

GAGES

DCP
NESS ID: DDD39626
OWNER: USGS
REPORT TIME: 00:38:30
INTERVAL: 60

TELEM
TYPE OF TELEMETRY: LARC
OWNER: NWS
INTERVAL: 60

PAYOR/COST OF LINE: Assoc / $ 0.00

GAGE TYPE	OWNER	MAINTENANCE	BEGAN	ENDED	GAGE LOCATION/REMARKS
STAFF	Unknown	Unknown	03/01/1890	10/31/1890	At site 7 mi. upstream, different datum (published as "near Boca").
STAFF	Unknown	Unknown	09/07/1899	05/31/1909	At approx. same location as present gage, different datum (published as "at or near NV-CA State Line").
STAFF	Unknown	Unknown	06/01/1909	07/31/1912	At site 2.5 mi. DS, different datum (published as "at or near NV-CA State Line").
FLOAT	Assoc	Assoc	08/01/1912	12/31/1937	At site 4.1 mi. US of current location at different datum (published as "at Iceland"). (Operated by USBR 8/1/1912-9/30/1929; by US Watermaster 10/1/1929-12/31/1937, in cooperation with TCID.)
RECORDER	Assoc	Assoc	08/01/1912	12/31/1937	At site 4.1 mi. US of current location at different datum (published as "at Iceland"). (Operated by USBR 8/1/1912-9/30/1929; by US Watermaster 10/1/1929-12/31/1937, in cooperation with TCID.)
STAFF	Assoc	Assoc	08/01/1912	12/31/1937	At site 4.1 mi. US of current location at different datum (published as "at Iceland"). (Operated by USBR 8/1/1912-9/30/1929; by US Watermaster 10/1/1929-12/31/1937, in cooperation with TCID.)
FLOAT	Assoc	Assoc	01/01/1938	08/27/1957	Operated by US Watermaster in cooperation with Truckee-Carson Irrigation District at approx. same location as present gage, datum 1.0 ft. higher.
RECORDER	Assoc	Assoc	01/01/1938	08/27/1957	Operated by US Watermaster in cooperation with Truckee-Carson Irrigation District at approx. same location as present gage, datum 1.0 ft. higher.
STAFF	Assoc	Assoc	01/01/1938	08/27/1957	Operated by US Watermaster in cooperation with Truckee-Carson Irrigation District at approx. same location as present gage, datum 1.0 ft. higher.
FLOAT	USGS	USGS	08/28/1957		Inside stilling well; float tape drives HANDAR 436 dual port shaft encoder, which drives data logger, DCP & LARC. On LB, 0.5 mi. US of Mystic Cyn., 0.7 mi. DS of Farad Powerhouse, 2.5 mi. N of Floriston, 3.5 mi. US of CA/NV Line.
IS STAFF	USGS	USGS	08/28/1957		Inside stilling well, same location as float (0.5 mi. US of Mystic Cyn, 0.7 mi. DS of Farad Pwrhse). Limits: 0.00' to 13.54'
STAFF	USGS	USGS	08/28/1957		3 Sections: 2.14'-6.05' (10' streamward of well); 5.54'-8.60' (7' streamward of well); 8.55'-13.54' (on streamward side of well). On LB, 0.5 mi. US of Mystic Cyn., 0.7 mi.DS of Farad Pwrhs, 2.5 mi.N of Floriston, 3.5 mi. US of CA/NV Line.
TELEMARK	NWS	NWS	02/21/1961	06/15/1982	In gage house, same location as float (0.5 mi. US of Mystic Cyn, 0.7 mi. DS of Farad Pwrhouse.
BDT/DCD	NWS	NWS	06/15/1982	07/18/1988	In gage house, same location as float (0.5 mi. US of Mystic Cyn., 0.7 mi. DS of Farad Pwrhse).
LARC	NWS	NWS	07/18/1988		HANDAR Model 550A, Driven by Design Analysis data logger. On LB, 0.5 mi. US of Mystic Cyn, 0.7 mi. DS of Farad Powerplant, 2.5 mi. N of Floriston, 3.5 mi. US of CA-NV State Line.
HANDAR 436	USGS	USGS	08/01/1990		HANDAR 436 dual port shaft encoder, driven by float tape; drives data logger, DCP & LARC. On LB, 0.5 mi. US of Mystic Cyn, 0.7 mi. DS of Farad Pwrhs, 2.5 mi. N of Floriston, 3.5 mi. US of CA-NV Line.
RECORDER	USGS	USGS	08/01/1990		Design Analysis H522+ Waterlog w/GOES xmitter, driven by HANDAR shaft encoder. Also logs precip. On LB, 0.5 mi. US of Mystic Cyn, 0.7 mi. DS of Farad Powerhouse, 2.5 mi. N of Floriston, 3.5 mi. US of CA-NV State Line.

HISTORY

TYPE OF GAGE	OWNER	STARTING DATE	ENDING DATE
STAFF	Unknown	03/01/1890	10/31/1890
STAFF	Unknown	09/07/1899	05/31/1909
STAFF	Unknown	06/01/1909	07/31/1912
FLOAT	Assoc	08/01/1912	12/31/1937
RECORDER	Assoc	08/01/1912	12/31/1937
STAFF	Assoc	08/01/1912	12/31/1937
FLOAT	Assoc	01/01/1938	08/27/1957
RECORDER	Assoc	01/01/1938	08/27/1957
STAFF	Assoc	01/01/1938	08/27/1957
FLOAT	USGS	08/28/1957	
IS STAFF	USGS	08/28/1957	
STAFF	USGS	08/28/1957	
TELEMARK	NWS	02/21/1961	06/15/1982
BDT/DCD	NWS	06/15/1982	07/18/1988
LARC	NWS	07/18/1988	
HANDAR 436	USGS	08/01/1990	
RECORDER	USGS	08/01/1990	

ZERO ELEVATION	STARTING DATE
5154.210	01/01/1938
5153.210	08/27/1957

CRESTS*

FLOOD STAGE: 11.00 ACTION STAGE: 10.00 BANKFULL STAGE:
FLOOD FLOW: 10700 ACTION FLOW: 8660

DATE OF CREST	TIME LST	CREST (ft)	FLOW (CFS)	FROM HIGH WATERMARKS	BASED ON OLD DATUM	CAUSED BY ICE JAM	REMARKS
02/24/1904	UNDEF	8.92	6730				Actual pk stg @ old datum NA, stg calculated using rtg #24.1 (9/19/2011). Daily Average.
05/07/1906	UNDEF	8.16	5410				Actual pk stg @ old datum NA, stg calculated using rtg #24.1 (9/19/2011). Daily Average.
03/18/1907	UNDEF	13.34	15300				Actual peak stg @ old datum NA, stg calculated using rtg #24.1 (9/19/2011). Daily Average.
01/16/1909	UNDEF	9.66	8110				Measured peak stage NA, stage calc using rating #24.1 (9/19/2011). Daily Average.
04/26/1911	UNDEF	8.41	5830				Actual pk stg @ old datum NA, stg calculated using rtg #24.1 (9/19/2011). Daily Average.
03/25/1928	UNDEF	11.70	12000				Actual peak stg @ old datum NA, stage calculated using rtg #24.1 (9/19/2011). Daily Average.
12/11/1937	UNDEF	13.43	15500				Measured pk stg @ old datum 11.59', stg calculated using rtg #24.1 (9/19/2011).
03/30/1940	UNDEF	9.15	7120				Actual peak stage @ old datum = 7.70, stage calc using rating #24.1 (9/19/2011).
01/22/1943	UNDEF	8.66	6260				Actual peak stage @ old datum = 7.40, stage calc using rating #24.1 (9/19/2011).
11/21/1950	UNDEF	14.37	17500				Measure pk @ old datum 14.50', stage calculated using rtg #24.1 (9/19/2011).
05/03/1952	UNDEF	9.01	6874				Actual pk stg @ old datum NA, stage calculated using rating #24.1 (9/19/2011). Daily average.
12/23/1955	UNDEF	12.90	14400				Actual peak stage at old datum NA, stage calculated using rtg #24.1 (9/19/2011).
05/19/1958	UNDEF	8.71	6360				Measured crest 8.41'. Crest stage calculated using Rtg 24 (12/22/2010).
02/01/1963	UNDEF	11.61	11900				Measured crest stage.
12/23/1964	UNDEF	11.67	12000				Measured crest stage.
05/21/1967	UNDEF	8.91	6710				Measured crest 8.64'. Stage calculated using Rtg 24.1 (9/19/2011).
05/11/1969	UNDEF	7.99	5120				Measured crest 7.73'. Stage calculated using Rtg 24.1 (9/19/2011).
01/21/1970	UNDEF	8.72	6380				Measured crest 8.49'. Crest stage calculated using Rating 24.1 (9/19/2011).
01/14/1980	UNDEF	9.73	8150				Measured peak stage = 9.70, stage calc using rating #24.1 (9/19/2011).
12/20/1981	UNDEF	9.41	7570				Measured crest 9.38'. Stage calc using rating #24.1 (9/19/2011)
06/17/1983	UNDEF	8.79	6500				Measured crest 8.71'. Stage calculated using Rtg 24.1 (9/19/2011).
11/24/1983	UNDEF	8.17	5420				Measured crest 7.98'. Crest stage calculated using Rtg 24.1 (9/19/2011).
03/08/1986	UNDEF	10.46	9550				Measured peak stage = 10.60, stage calc using rating #24.1 (9/19/2011).
05/01/1995	UNDEF	7.95	5060				Measured crest 7.74'. Crest calculated using Rtg 24.1 (9/19/2011).
05/18/1996	UNDEF	8.99	6840				Measured crest 8.93'. Stage calculated using Rtg 24.1 (9/19/2011).
01/02/1997	UNDEF	13.13	14900				Measured crest stage.
12/31/2005	UNDEF	10.75	10100				Measured peak stage = 10.77, stage calc using rating #24.1 (9/19/2011)

*NOTE: Crests prior to 9/30/1937 and 5/3/1952 are maximum daily averages, all others are instantaneous. All crest stages were converted to from crest flows using USGS Rating Number 24.1, in use 9/19/2011, put into use 9/13/2011. Actual measured crests, if available are noted in remarks. Only annual crests above 5000 cfs are included.

LOW WATER RECORDS*

DATE OF LOW WATER	STAGE (ft)	FLOW (CFS)	REMARKS
01/20/1925	2.11	40	Stage estimated w/USGS rtg #24.1 (9/19/2011)
11/08/1926	2.26	56	Stage estimated w/USGS rtg #24.1 (9/19/2011)
12/18/1930	2.30	61	Stage estimated w/USGS rtg #24.1 (9/19/2011)
10/16/1931	2.13	42	Stage estimated w/USGS rtg #24.1 (9/19/2011)
09/15/1933	2.08	37	Stage estimated w/USGS rtg #24.1 (9/19/2011)
09/29/1935	2.20	49	Stage estimated w/USGS rtg #24.1 (9/19/2011)
12/14/1936	2.54	99	Stage est w/ USGS rating #24.1 (9/19/2011)
01/15/1962	2.27	58	Stage est w/USGS rating #24.1 (9/19/2011)
09/30/1977	2.31	63	Stage est. w/USGS rating #23 (9/19/2011)
11/20/1977	2.08	37	Stage est. w/USGS rating #24.1 (9/19/2011)
10/21/1988	2.30	61	Stage est. w/USGS rating #24.1 (9/19/2011)
01/03/1990	2.49	89	Stage est. w/USGS rating #24.1 (9/19/2011)
11/21/1990	2.18	47	Stage est. w/USGS rtg #24.1 (9/19/2011)
10/25/1991	2.24	54	Stage est. w/USGS rating #24.1 (9/19/2011)
10/14/1992	2.12	41	Stage est. w/USGS rtg #24.1 (9/19/2011)
11/24/1993	2.36	69	Stage est. w/USGS rating #24.1 (9/19/2011)
10/31/1994	2.14	43	Stage est. w/USGS rtg #24.1 (9/19/2011)
12/12/2002	2.40	75	Stage est. w/USGS rating #24.1 (9/19/2011)
10/12/2004	2.38	73	Stage est. w/USGS rating #24.1 (9/19/2011)
11/01/2009	2.40	75	Stg est. w/USGS Rtg 24.1 (9/19/2011)

*NOTE: All stages listed were converted from low water flows using USGS Rating Number 24.1, in use 9/19/2011, put into use 9/13/2011). Flows are daily averages. Only annual daily minimum low flows below 100 cfs are included.

CONDITIONS AFFECTING FLOW

MILES ABOVE MOUTH: 81.9 DRAINAGE AREA: 932.0 POOL STAGE: 0.0

STREAM BED: Cobbles and scattered boulders; 1 channel all stages.

REACH: Confluence of Little Truckee @ Boca CA to Confluence of Dog Creek @ Verdi NV

REGULATION: Lake Tahoe & Donner Lake; Independence, Boca, Stampede, Martis Creek and Prosser Ck Reservoirs. Combined usable capcy ~1,073,000 AF. USGS est. Farad pk Q during 1/2/97 flood would have been ~39,600 cfs w/o reservoirs. Actual 1/2/97 crest was 14,900 cfs.

DIVERSION: Minor diversion of Little Truckee River to Sierra Valley

WINTER: During periods of extreme cold and low flows (<200 cfs), ice can form along banks.

TOPOGRAPHY: At high flows, channel is control & stable, straight for >500' US & DS. Channel ~100 ft wide. LB steep, w/willows, brush, rock. RB not as steep with willows, grass, trees. Cover ranges from conifers upper reaches to sagebrush/grass near gage.

REMARKS: Farad CRITICAL for Reno/Sparks FLWs as most Truckee R floods begin in higher reaches. Few flood effects near gage (I-80, Verdi). CAUTION! TRUCKEE MEADOWS/RENO/SPARKS FLOOD FLOWS ARE USUALLY MUCH HIGHER (~25%) THAN AT FARAD!

DAMAGE

STAGE	AREAS AFFECTED
6.30	No flooding from Boca to Mogul. About 2700 cfs...the USGS estimates a one in 2 chance of being exceeded during any given year.
8.00	No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 5150 cfs...the USGS estimates this flow has about a one in 5 chance of being exceeded during any given year at Farad. Truckee Meadows below Reno monitoring flow. Agricultural areas in the Truckee Meadows begin to have minor flooding.
8.50	No flooding Boca to Mogul. At about 6000 cfs...releases from Prosser...Boca and Stampede Reservoirs are cut so flow at Reno does not exceed 6000 cfs. USGS estimates this flow has about a one and 7 chance of being exceeded during any given year at Farad. Max safe flow in the Sparks/Vista area. Flooding of meadows east of Sparks begins at about 6300 cfs. Areas affected are UNR Agricultural Farm...Boynton Slough & Rosewood Lakes Golf Course.
9.00	No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 6850 cfs...the USGS estimates that this much flow has a one in 8 chance of being exceeded during any given year at Farad. This represents Sparks/Vista area flood flow. Channel capacity in lower portions of Sparks/Vista with very minor flooding beginning in the Sparks/Vista area. Areas affected are bike paths along the Truckee River...UNR Agricultural Farm...Boynton Slough and Rosewood Lakes Golf Course.
9.50	No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 7700 cfs...the USGS estimates that this much flow has about a one in 10 chance of being exceeded during any given year at Farad. This represents flood flow from Vista downstream. Very minor flooding begins in portions of Lockwood...Tracy...Wadsworth and Nixon.
10.00	No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 8650 cfs...the USGS estimates that this much flow has about a one in 15 chance of being exceeded during any given year at Farad.
10.50	No flooding from Boca to Mogul...but near bankfull in portions of the Verdi/Mogul area. At about 9600 cfs...the USGS estimates that this much flow has about a one in 20 chance of being exceeded during any given year at Farad.
11.00	Flood stage...about 10700 cfs. Minor lowland flooding in some locations from Boca to Mogul...especially in the Verdi/Mogul area. The USGS estimates that this much flow has a one in 25 chance of being exceeded during any given year at Farad.
11.50	Minor to moderate flooding from Boca to Mogul...especially to trailer and public parks in the Verdi/Mogul area along the river. Similar impacts to the 2/1/1963 and 12/23/1964 floods at Farad. At about 11700 cfs...the USGS estimates that this much flow has a one in 30 chance of being exceeded during any given year at Farad.
12.00	Moderate flooding from Boca to Mogul...especially to trailer and public parks in the Verdi/Mogul area along the river. Some damage to roads...bridges and low lying structures in the area. Similar impacts to the floods which occurred on 2/1/1963 and 12/23/1964 at Farad. At about 12600 cfs...the USGS estimates that this much flow has about a one in 40 chance of being exceeded during any given year at Farad.
12.50	Moderate to major flooding from Boca to Mogul. Moderate damage to roads...bridges and low lying buildings...especially in the Verdi/Mogul area. Transportation affected with many road closures. Impacts worse than 2/1/1963 and 12/23/1964 floods at Farad...but not as severe as 1/2/1997 or 12/23/55 floods. At 13600 cfs...the USGS estimates this flow has a one and 50 chance of being exceeded during any given year at Farad.
13.00	Major flooding from Boca to Mogul...especially the Verdi/Mogul area. Most roads... agricultural areas and low lying buildings along river flood. Significant damage and transportation impacts...portions of I-80 flood. Like 12/23/1955 and 1/2/1997 floods. At about 14600 cfs...the USGS estimates a one in 60 chance of being exceeded during any year.
13.50	Major flooding with extensive flood damage to roads...bridges and structures from Boca to Mogul...especially in the Verdi/Mogul area. Transportation becomes very difficult and most major roads and highways in the area are flooded...including I80. Slightly worse impacts than the 1/2/1997 flood. About 15600 cfs...about a one in 70 chance of being exceeded any year per USGS estimates.
14.00	Severe...near record flooding from Boca to Mogul with extensive damage to low lying structures along the river. Regional transportation severely affected with many major roads flooded or damaged. At about 16700 cfs...USGS estimates the chance of exceeding this flow about one in 85 chance any year. Not quite as severe as the flood of record 11/21/1950 flood.
14.50	Flood disaster from Boca downstream to Nixon. Near record flooding of buildings...roads and bridges in the Verdi/Mogul area. At about 17800 cfs...similar to the record flood at Farad on 11/21/1950...with about a one in 100 chance of being exceeded during any given year. Transportation in and out of the region is extremely difficult.
15.00	Record flooding at Farad and near record to record flooding on the entire mainstem Truckee River. Disastrous flooding of buildings...roads and bridges in the Verdi/Mogul area. Transportation is nearly cut off in all directions to and from Reno/Sparks. At about 19000 cubic feet per second...less than a 1 in 100 chance of being exceeded any year per USGS estimates.

RIVER STAGE DATA

	16-		
	15-		
15.00 - Record flooding at Farad and near record to record flooding on the entire mainstem Truckee River. Disastrous flooding of buildings...roads and bridges in the Verdi/Mogul area. Transportation is nearly cut off in all directions to and from Reno/Sparks. At about 19000 cubic feet per second...less than a 1 in 100 chance of being exceeded any year per USGS estimates.		14.37	12/21/1950
	14-		
14.50 - Flood disaster from Boca downstream to Nixon. Near record flooding of buildings...roads and bridges in the Verdi/Mogul area. At about 17800 cfs...similar to the record flood at Farad on 11/21/1950...with about a one in 100 chance of being exceeded during any given year. Transportation in and out of the region is extremely difficult.		13.43	12/11/1937
		13.34	03/18/1907
	13-	13.13	01/02/1997
14.00 - Severe...near record flooding from Boca to Mogul with extensive damage to low lying structures along the river. Regional transportation severely affected with many major roads flooded or damaged. At about 16700 cfs...USGS estimates the chance of exceeding this flow about one in 85 chance any year. Not quite as severe as the flood of record 11/21/1950 flood.		12.90	12/23/1955
	12-		
13.50 - Major flooding with extensive flood damage to roads...bridges and structures from Boca to Mogul...especially in the Verdi/Mogul area. Transportation becomes very difficult and most major roads and highways in the area are flooded...including I80. Slightly worse impacts than the 1/2/1997 flood. About 15600 cfs...about a one in 70 chance of being exceeded any year per USGS estimates.		11.70	03/25/1928
	11-		
13.00 - Major flooding from Boca to Mogul...especially the Verdi/Mogul area. Most roads... agricultural areas and low lying buildings along river flood. Significant damage and transportation impacts...portions of I-80 flood. Like 12/23/1955 and 1/2/1997 floods. At about 14600 cfs...the USGS estimates a one in 60 chance of being exceeded during any year.		10.75	12/31/2005
		10.46	03/08/1986
	10-		
12.50 - Moderate to major flooding from Boca to Mogul. Moderate damage to roads...bridges and low lying buildings...especially in the Verdi/Mogul area. Transportation affected with many road closures. Impacts worse than 2/1/1963 and 12/23/1964 floods at Farad...but not as severe as 1/2/1997 or 12/23/55 floods. At 13600 cfs...the USGS estimates this flow has a one and 50 chance of being exceeded during any given year at Farad.		9.73	01/14/1980
		9.41	12/20/1981
	9-	9.15	03/30/1940
		8.99	05/18/1996
12.00 - Moderate flooding from Boca to Mogul...especially to trailer and public parks in the Verdi/Mogul area along the river. Some damage to roads...bridges and low lying structures in the area. Similar impacts to the floods which occurred on 2/1/1963 and 12/23/1964 at Farad. At about 12600 cfs...the USGS estimates that this much flow has about a one in 40 chance of being exceeded during any given year at Farad.		8.79	06/17/1983
		8.41	04/26/1911
	8-	8.17	11/24/1983
		7.99	05/11/1969
11.50 - Minor to moderate flooding from Boca to Mogul...especially to trailer and public parks in the Verdi/Mogul area along the river. Similar impacts to the 2/1/1963 and 12/23/1964 floods at Farad. At about 11700 cfs...the USGS estimates that this much flow has a one in 30 chance of being exceeded during any given year at Farad.			
	7-		
11.00 - Flood stage...about 10700 cfs. Minor lowland flooding in some locations from Boca to Mogul...especially in the Verdi/Mogul area. The USGS estimates that this much flow has a one in 25 chance of being exceeded during any given year at Farad.			

10.50 - No flooding from Boca to Mogul...but near bankfull in portions of the Verdi/Mogul area. At about 9600 cfs...the USGS estimates that this much flow has about a one in 20 chance of being exceeded during any given year at Farad.

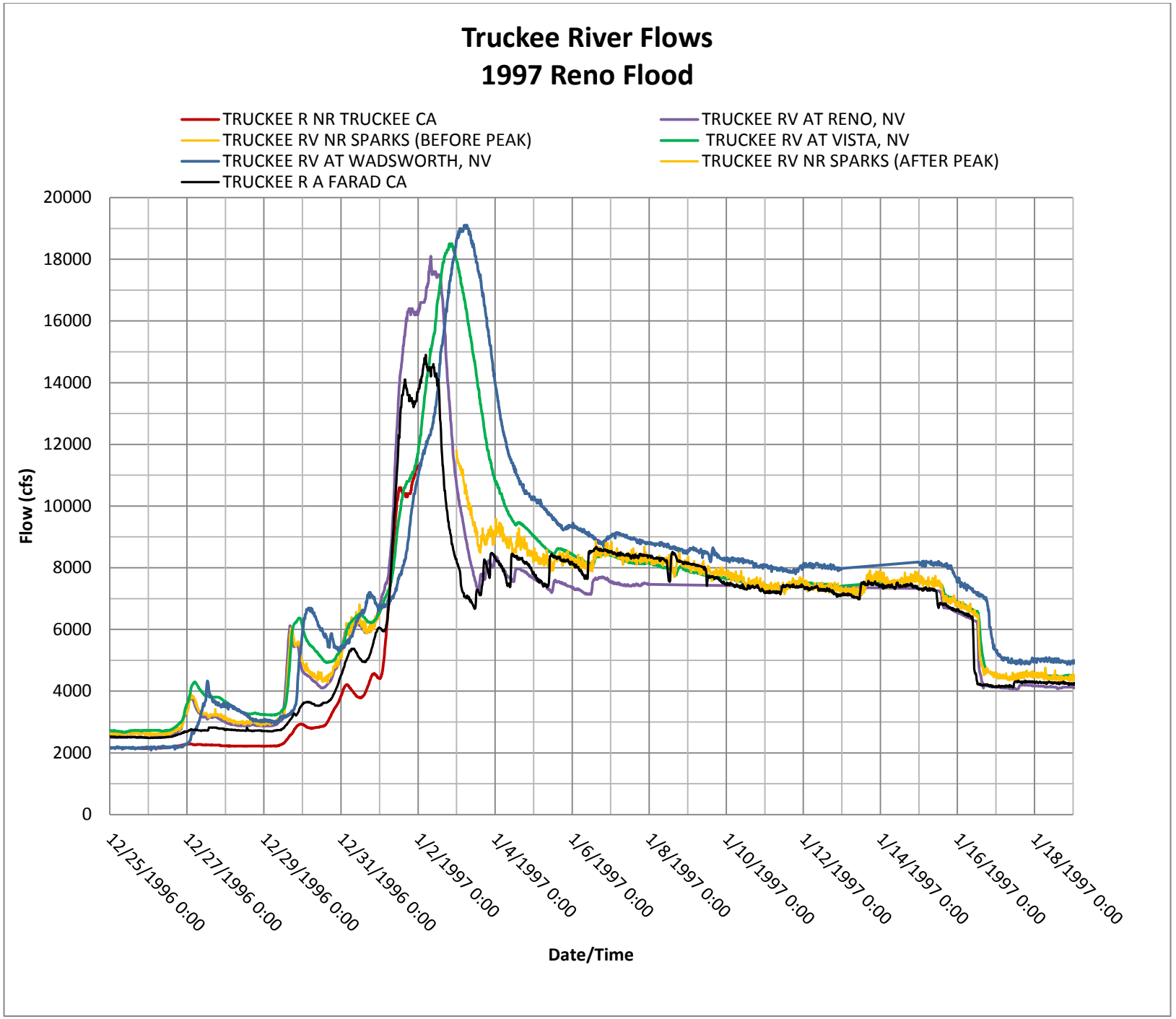
10.00 - No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 8650 cfs...the USGS estimates that this much flow has about a one in 15 chance of being exceeded during any given year at Farad.

9.50- No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 7700 cfs...the USGS estimates that this much flow has about a one in 10 chance of being exceeded during any given year at Farad. This represents flood flow from Vista downstream. Very minor flooding begins in portions of Lockwood...Tracy...Wadsworth and Nixon.

9.00 No flooding from Boca to Mogul...including the Floriston and Verdi areas. At about 6850 cfs...the USGS estimates that this much flow has a one in 8 chance of being exceeded during any given year at Farad. This represents Sparks/Vista area flood flow. Channel capacity in lower portions of Sparks/Vista with very minor flooding beginning in the Sparks/Vista area. Areas affected are bike paths along the Truckee River...UNR Agricultural Farm...Boynton Slough and Rosewood Lakes Golf Course.

CONTACTS

SQ	CONTACT/REMARKS	PHONE
1	USGS WRD Carnelian Bay	530-546-0187
	phoneywe@usgs.gov	
	Carnelian Bay CA Office maintains gage; field chief is Paul Honeywell.	
2	Washoe Co. Emerg. Mgmt.	775-337-5898
	AKenneston@washoecounty.us	
	Aaron Kenneston is Washoe Co. Emergency Mgr, operates Washoe EOC, monitors gage data for flood effects in County.	
3	Truckee Riv Fld Project	775-850-7460
	purban or eevans@washoecounty.us; floodawareness.com	
	Monitors gages/fcsts, operates Truckee R Fld Warning System. Ed Evans (850-7465), primary contact. Paul Urban (850-7428), Project Mgr. Contact info @ www.floodawareness.com	
4	US Water Master	775-784-5241
	h2omastr@aol.com, cjblanchard@uswatermaster.org	
	Garry Stone is Water Master, Chad Blanchard is chief deputy. WM pays LARC phone, uses gage data&fcsts for resv & fld control, H2O supply mgt.	
5	Washoe Co. S.O.	775-785-4629
	sheriffweb@washoecounty.us	
	S.O. monitors gage and forecast data for flood effects in reach. Phone is non-emergency dispatch. Sheriff is Mike Haley.	
6	Reno Emergency Mgr	775-334-1214
	MunnsS@Reno.gov	
	Sandy Munns is Reno EM	
7	Nevada Co. S.O.	530-582-7838
	Keith Royal is Sheriff. Monitors gage data for flood effects in County.	
8	Nevada Co. OEM	530-265-1515
	Victor.ferrera@co.nevada.ca.us	
	Vic Ferrera is Manager. Monitors gage data for flood effects in Nevada Co. Truckee City Police 530-550-2328, 530-550-2320.	
9	City of Reno Public Wks	775-334-2350
	John Flansberg is Public Works Director; responsible for monitoring forecasts and stages at this gage for flood effects in Reno.	
10	Sierra County SO	530-289-3700
	sheriffadmin@sierracounty.ws	
	John Evans is Sierra County Sheriff-Coroner.	
11	National Weather Service	775-673-8107
	El Techs maintains LARC; HMTs/SH does QC.	



January 1997 Flood Hydrographs for Truckee River. All Data from USGS Instantaneous Data Archive (http://ida.water.usgs.gov), (Graph Courtesy US Bureau of Reclamation)

Photos: Truckee River at Farad Gage Location

Looking downstream (NNE) from left bank, 8/25/2010, stage: 3.88', about 545 cfs.

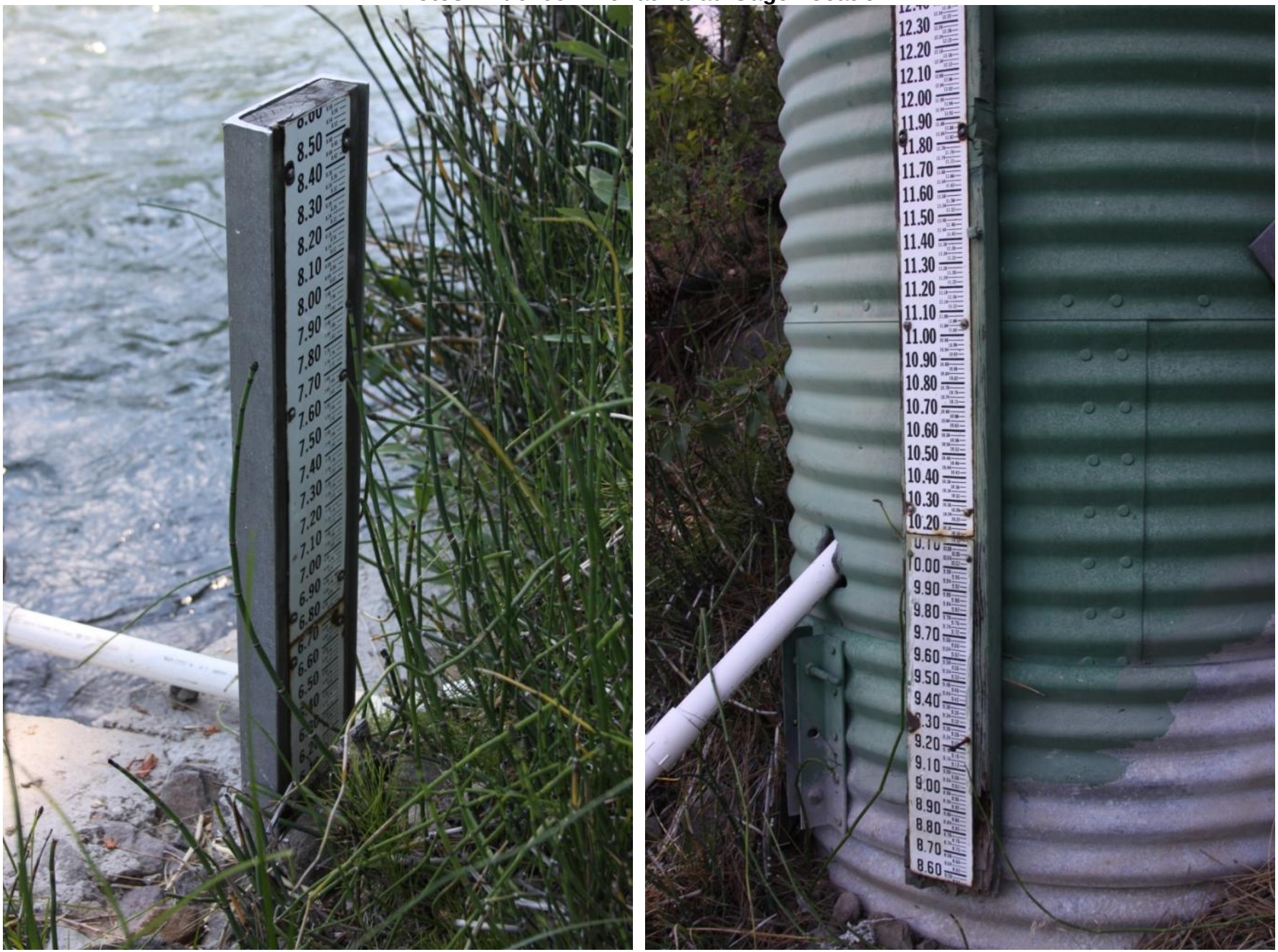
Photos: Truckee River at Farad Gage Location

Looking upstream (SSW) from left bank; 8/25/2010, stage: 3.88', about 545 cfs.

Photos: Truckee River at Farad Gage Location

Left photo: Gage house, FARC1. Southern Pacific RR tracks can be seen on opposite side of river. Right photo: FARC1 cable car and cableway 220' DS of gage house on left bank. Span between supports is 260'. 8/25/2010, stage: 3.88', about 545 cfs.

Photos: Truckee River at Farad Gage Location



Left photo: Middle staff gage on left bank, 7' streamward of stilling well/gage house; range: 5.54' to 8.60' Right photo: Upper staff gage on streamward side of stilling well; range: 8.55 to 13.54'. 8/25/2010, stage: 3.88', about 545 cfs.

Photos: Truckee River at Farad Gage Location

FARC1 Belfort Universal precipitation gage located about 40’ DS of gage house on LB. 15-minute precip data from site is transmitted via GOES DCP.

Photos: Truckee River at Farad Gage Location

FARC1 precip gage (left) and gage house (under trees to right), view is to S, up left bank, 8/25/2010.

Equipment in gage house, 8/25/2010. From left to right: Handar Model 550A LARC (NWS); Design Analysis Hydrolog H522+ Data Log w/GOES transmitter (USGS); HANDAR 436 dual port shaft encoder(USGS), which drives recorder and LARC and is driven by well float tape.

View down FARC1 stilling well, 8/25/2010. Inside staff gage range is 0.00’ to 13.54’.